Technical Bulletin #45:

Rice Fertilization Program

Per recommendations from the International Rice Research Institute (IRRI), we are trying to follow the most common practices and situations our farmers have when designing a fertilization program for rice. As such, we need to consider soil fertility, pH, and organic matter content, in addition to considering the way farmers manage crop residues and targeted yields. Once you know how to manage this program, you can customize a recommendation for any particular situation (different soil, fertility, rice straw management, etc.)

First, we selected from the IRRI Nutrient manager the best option for our farmers (see below):

Nutrient Manager for Rice Tutorial: Version 1.0

Develop a generic nutrient management guideline for a rice-growing area

Instruction: Answer the following questions in order from 1 to 5.

1. What is the rice establishment method?
   - ○ Transplanting ◉ Wet seeding
   - ○ Dry seeding
2. What is the growth duration of the rice variety from sowing to harvest?
   - ○ 90-99 days ◉ 110-119 days
   - ○ 100-109 days ○ 120-129 days
3. What is the total yield of rice typically attainable in your field?
   - ○ 3 t/ha ○ 5 t/ha ○ 7 t/ha ○ 9 t/ha
   - ◉ 4 t/ha ○ 6 t/ha ○ 8 t/ha
4. How did you manage the crop residue at harvest of the previous rice crop?
   - ○ Remove all the above-ground crop biomass from the field area
   - ◉ Retain anchored crop biomass (stubbles) in the field
   - ○ Return straw from the threshing pile and spread over the field before the next rice crop
   - ○ Use a combine harvesting machine with the crop residue retained in the field
5. Is your rice field located in low-lying area with high soil fertility?
   - ○ No ◉ Yes

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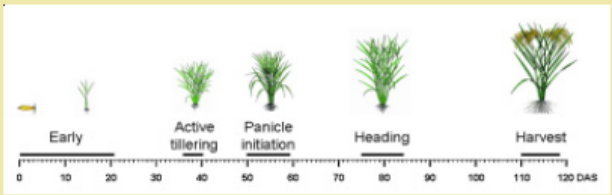
ⓘ The figure below provides a nutrient management guideline based on your responses to the five questions.

Yield (14% MC): 4 t/ha

Wet-seeded: 110-119 days from sowing to harvest



Growth Stage	DAS*	N (kg/ha)	P_2O_5 (kg/ha)	K_2O (kg/ha)
Early:	0-21	10	10	0
Active tillering:	36-40	17		
Panicle initiation:	50-59	17		

*DAS - Days after sowing

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Then we have to choose what fertilizers to use (use the "Fertilizer Chooser" program), and for this recommendation we will use two options:

1. Using Urea (46-0-0), DAP (18-46-0), and KCl (0-0-60) is the best economical option. In this example we are using a 1,000 m^2 plot; therefore, if you are going to do a recommendation for a different plot size, you divide the Kg recommended here and multiply by the actual size of the plot you are attending:

For short duration varieties (Sen Pidao, IR66, IR504) broadcasted or sown by drum seeder

Fertilizer	Basal before sowing	15 DAS	30 DAS	PI – 40 DAS
Urea		2.70 kg/1,000 m^2	5.0 Kg/1,000 m^2	5.0 Kg/1,000 m^2
DAP	4.40 Kg/1,000 m^2			
KCl	1.60 Kg/1,000 m^2			1.60 Kg/1,000 m^2

For short duration varieties (Sen Pidao, IR66, IR504) transplanted

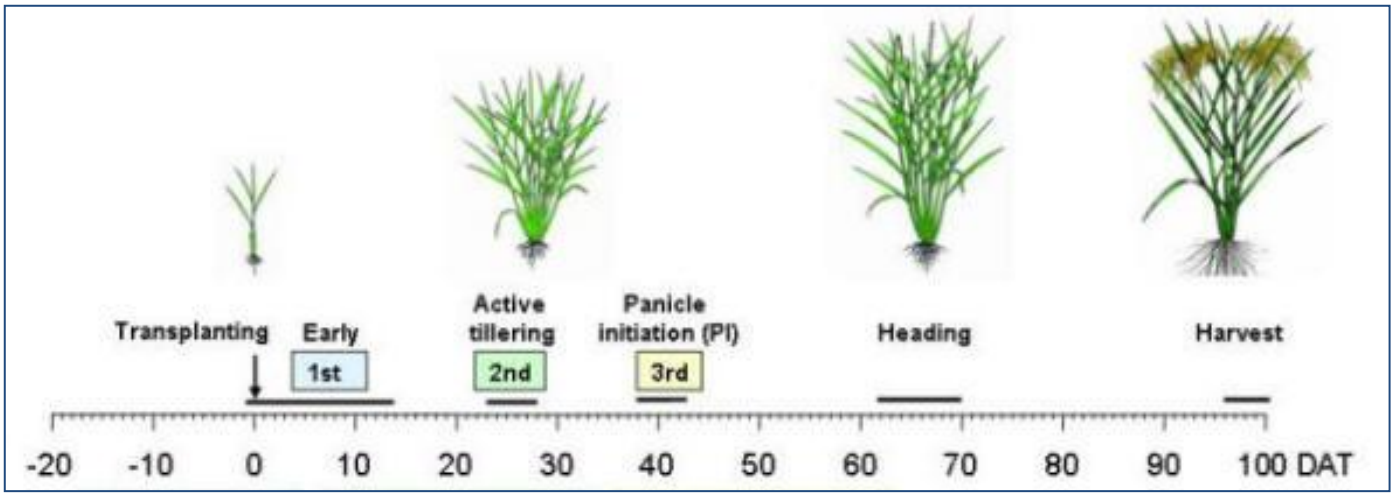
Fertilizer	Basal before TP	15 DAT	PI 25 DAT
Urea	2.70 kg/1,000 m^2	5.0 kg/1,000 m^2	5.0 Kg/1,000 m^2
DAP	4.40 Kg/1,000 m^2		
KCl	1.60 Kg/1,000 m^2		1.60 Kg/1,000 m^2

For medium/long duration varieties (Phka Rumdoul) broadcasted or sown by drum seeder

Fertilizer	Basal before sowing	25 DAS	45 DAS	PI (15 Sept-15 Oct)
Urea		2.70 kg/1,000 m^2	5.0 Kg/1,000 m^2	5.0 Kg/1,000 m^2
DAP	4.40 Kg/1,000 m^2			
KCl	1.60 Kg/1,000 m^2			1.60 Kg/1,000 m^2

For medium/long duration varieties (Phka Rumdoul, Riangchey, Malis) transplanted

Fertilizer	Basal before TP	25 DAT	PI (15 Sept-15 Oct)
Urea	2.70 kg/1,000 m^2	5.0 Kg/1,000 m^2	5.0 Kg/1,000 m^2
DAP	4.40 Kg/1,000 m^2		
KCl	1.60 Kg/1,000 m^2		1.60 Kg/1,000 m^2



Main stages for fertilizer application for medium duration rice varieties

2. Using as main fertilizer 16-20-0 and Urea and KCl:

For short duration varieties (Sen Pidao, IR66, IR504) broadcasted or sown by drum seeder

Fertilizer	Basal before sowing	15 DAS	30 DAS	PI – 40 DAS
16-20-0	11.50 kg/1,000 m^2			
Urea		0.40 Kg/1,000 m^2	5.0 Kg/1,000 m^2	5.0 Kg/1,000 m2
KCl	1.90 Kg/1,000 m^2			1.90 Kg/1,000 m^2

For short duration varieties (Sen Pidao, IR66, IR504) transplanted

Fertilizer	Basal before TP	15 DAT	PI 25 DAT
16-20-0	11.50 kg/1,000 m^2		
Urea	0.40 Kg/1,000 m^2	5.0 Kg/1,000 m^2	5.0 Kg/1,000 m2
KCl	1.90 Kg/1,000 m^2		1.90 Kg/1,000 m^2

For medium/long duration varieties (Phka Rumdoul) broadcasted or sown by drum seeder

Fertilizer	Basal before sowing	25 DAS	45 DAS	PI (15 Sept-15 Oct)
16-20-0	11.50 kg/1,000 m^2			
Urea		0.40 Kg/1,000 m^2	5.0 Kg/1,000 m^2	5.0 Kg/1,000 m2
KCl	1.90 Kg/1,000 m^2			1.90 Kg/1,000 m^2

For medium/long duration varieties (Phka Rumdoul, Riangchey, Malis) transplanted

Fertilizer	Basal before TP	25 DAT	PI (15 Sept-15 Oct)
16-20-0	11.50 kg/1,000 m^2		
Urea	0.40 Kg/1,000 m^2	5.0 Kg/1,000 m^2	5.0 Kg/1,000 m2
KCl	1.90 Kg/1,000 m^2		1.90 Kg/1,000 m^2

Remember that it is always important to check the crop before applying the Urea side dressing. If you see the plants are too green and luscious, you may reduce or skip that application because this type of plant (luscious) is more susceptible to bacterial, fungal, and pest attacks.

If you are not sure about the second and third-side dressing, please consult your Cambodia HARVEST technician.

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